

Grade 2

Mathematics

Item Specifications



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Introduction

In 2014 Missouri legislators passed House Bill 1490, mandating the development of the Missouri Learning Expectations. In April of 2016, these Missouri Learning Expectations were adopted by the State Board of Education. Groups of Missouri educators from across the state collaborated to create the documents necessary to support the implementation of these expectations.

One of the documents developed is the item specification document, which includes all Missouri grade level/course expectations arranged by domains/strands. It defines what could be measured on a variety of assessments. The document serves as the foundation of the assessment development process.

Although teachers may use this document to provide clarity to the expectations, these specifications are intended for summative, benchmark, and large-scale assessment purposes.

Components of the item specifications include:

Expectation Unwrapped breaks down a list of clearly delineated content and skills the students are expected to know and be able to do upon mastery of the Expectation.

Depth of Knowledge (DOK) Ceiling indicates the highest level of cognitive complexity that would typically be assessed on a large scale assessment. The DOK ceiling is not intended to limit the complexity one might reach in classroom instruction.

Item Format indicates the types of items used in large scale assessment. For each expectation, the item format specifies the type best suited for that particular expectation.

Text Types suggests a broad list of text types for both literary and informational expectations. This list is not intended to be all inclusive: other text types may be used in the classroom setting. The expectations were written in grade level bands; for this reason, the progression of the expectations relies upon increasing levels of quantitative and qualitative text complexities.

Grade 2 Mathematics

Content Limits/Assessment Boundaries are parameters that item writers should consider when developing a large scale assessment. For example, some expectations should not be assessed on a large scale assessment but are better suited for local assessment.

Sample stems are examples that address the specific elements of each expectation and address varying DOK levels. The sample stems provided in this document are in no way intended to limit the depth and breadth of possible item stems. The expectation should be assessed in a variety of ways.

Grade 2 Mathematics

Frequently asked questions for Item Specification and Sample Stems

1. What is the purpose of the Item Specification document?

Historically, Item Specification documents are written for test item writers. In Missouri, this document was seen as a resource for not only item writers, but teachers as well. The unwrapped section should provide more detail on the meaning of the standard and the sample stems should provide example items that also help clarify the standard. In this update, the language used in the Expanded Expectations document was included to merge the two documents for easier access. In some standards a “Notes” section was added to provide additional information.

2. Why do some unwrapped sections have the same few sentences at the beginning?

For standards that have multiple parts and are listed as sub expectations, e.g., NF.C.5.b, the first part highlights the intent of that standard series. Often, these standards should be taught together as they develop a bigger idea or concept.

3. Why is the Fluency definition only on some standards?

Certainly, students having experience using different strategies and picking the strategy they feel best for given situations is important to improving student knowledge in mathematics. The Missouri Educators working on the document felt it important to highlight areas where student access to multiple strategies would provide the greatest support. Listing fluency in all standards would likely lessen the impact needed.

4. What does the “e.g.” mean when listed in the unwrapped section?

The “e.g.” is a way to highlight a list of examples, ideas, or concepts. It is **not** an exhaustive list, nor is it intended to represent the best examples. It is merely a partial list to provide some examples.

5. What does “with or without context” mean?

This phrase was used to highlight that the math problems might have some situational context or could possibly be a strictly number or symbol situation. The Educators working on this update wanted the focus to be on using math to solve problem situations rather than a focus on “real world” problems.

6. Are the Sample Stems examples of summative test items?

The Sample Stems could be a classroom item or possibly an assessment item. In some cases, the problem used would have to be adjusted to use on a Statewide assessment. The goal was to give students and teachers a problem that aligns to the standard. The Stems provided in the document are an example. The educators assisting with the update in some cases created more than one example and those are listed at the bottom of the document. All examples are good, some fit better on the page within the Item Specification which have determined those shown in both places.

7. Why are there no answers listed with the Sample Stems?

The focus of the Sample Stems should be on the work students can demonstrate to indicate their level of understanding for the given standard. While the answer is one component, when given, it frequently becomes the focus which does not provide important information in the learning process.

8. What does “No Limits” mean in the Limits and Boundaries section?

Where there are no limits or boundaries to be listed, “No Limits” was used to indicate this situation and help those using the document understand that it wasn’t an oversight. IMPORTANT NOTE: if the standard itself or the cluster heading lists a specific limit, e.g., specific denominators, size or type of number, that was not duplicated in the Limits section.

9. Why do some words show a short definition?

While this does not serve as a replacement for a glossary, there were terms within the unwrapping that the committee felt should have meaning included. This occurs in the standard where it specifically addresses the concept in the standard, e.g., cardinality, trapezoid.

10. Why are Kindergarten and Grade 1 Sample Stems a bit different?

Students in Kindergarten and Grade 1 are beginning readers, so teachers should expect to read problems to the students rather than only providing problems to be solved.

Grade 2 Mathematics

Mathematics		2.NBT.A.1
NBT	Number Sense and Operations in Base Ten	PRIORITY STANDARD
A	Understand place value of three digit numbers	
1	Understand three-digit numbers are composed of hundreds, tens and ones.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will understand that three-digit numbers are composed of hundreds (100, 200, 300...), tens (10, 20, 30,...) and ones (zero, one, two, three...).</p> <p>The student will compose and decompose three-digit numbers in multiple ways and explain their reasoning through models, pictures, or words.</p>		<p><u>Sample Stems</u></p> <p>What does 563 represent? What about 307?</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

[illegible]

Grade 2 Mathematics

Mathematics		2.NBT.A.3
NBT A 3	Number Sense and Operations in Base Ten Understand place value of three digit numbers Count within 1000 by 1s, 10s and 100s starting with any number.	
<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u> The student will count by 1s, 10s or 100s, starting at any whole number, within 1000. Note: Students should be able to count forward or backward within 1000.		<u>Sample Stems</u> Start counting by ones from 26 and I will tell you when to stop (teacher stops them at 42). Start counting by tens from 145 and I will tell you when to stop (teacher stops them at 205). Start counting by hundreds at 623 and I will tell you when to stop (teacher stops them at 923). Additional Stems for 2nd Grade Found at End of Document.
<u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u> No Limits.		<u>Calculator Designation</u> NO – a calculator will not be available for items
DOK Ceiling: 2		
Item Format: Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.NBT.A.4
NBT A 4	Number Sense and Operations in Base Ten Understand place value of three digit numbers Read and write numbers to 1000 using number names, base-ten numerals and expanded form.	
<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u> The student will read and write whole numbers zero to 1000 using number names, base-ten numerals and expanded form. Note: Expanded form is not the same as expanded notation , e.g., expanded form is expressed $537 = 500 + 30 + 7$; expanded notation is expressed $537 = (5 \times 100) + (3 \times 10) + (7 \times 1)$. According to the standard, expanded notation is not appropriate. Based on the wording in the standards base ten numerals will replace standard form ; number names will replace word form ; and expanded form will be used.		<u>Sample Stems</u> Students are given cards 0-9 to generate two 3-digit numbers. Each student will then write or type a math story problem with their given numbers using their number names. <

Grade 2 Mathematics

Mathematics		2.NBT.A.5
NBT	Number Sense and Operations in Base Ten	PRIORITY STANDARD
A	Understand place value of three digit numbers	
5	Compare two three-digit numbers using the symbols $>$, $=$ or $<$.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will compare two three-digit numbers based on the meaning (value) of the digits. Comparing, in mathematics, should include both how numbers are the same as well as how they are different. In this context, students should be able to use the value to explain the meaning of each digit in comparing the size of numbers.</p> <p>The student will explain their comparison, e.g., using number lines, manipulatives, models, then communicate the results of the comparison using the symbols $<$, $>$ or $=$.</p> <p>Note: Using the language of more and less may support the development of the concepts of “greater than” and “less than”.</p> <p>Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an appropriate strategy in a reasonable amount of time, knowing multiple processes and can apply or adapt strategies to find a correct solution.</p> <p>The student will use and explain multiple strategies to solve problems with or without context involving comparing two three-digit numbers.</p>		<p><u>Sample Stems</u></p> <p>Compare three hundred seventeen and three hundred forty. Which number is larger? Explain how you know.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics

2.NBT.B.6

NBT
B
6 **Number Sense and Operations in Base Ten**
Use place value understanding and properties of operations to add and subtract.
Demonstrate fluency with addition and subtraction within 100.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will demonstrate fluency of addition and subtraction with numbers and results within 100 using student selected strategies based on place value, e.g., composing and decomposing tens, using partials, counting on/back in groups of tens, properties of operations, e.g., associative, commutative, identity, and/or the relationship between addition and subtraction.

Note:

Students should have access to manipulatives, models, and tools to support development of concepts, e.g., hundreds chart, base ten blocks.

While students will be learning how to use strategies and properties of operations, i.e., associative, commutative, identity, the focus is not on identifying or naming the properties; however, the teacher should use the correct mathematical vocabulary.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an [appropriate strategy](#) in a reasonable amount of time, [knowing multiple processes](#) and can apply or adapt strategies to find a correct solution.

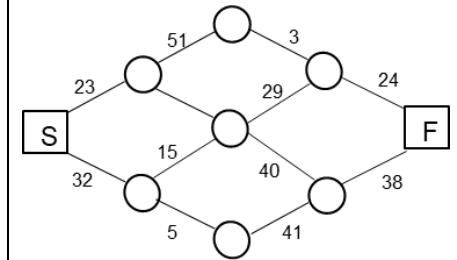
The student will use and explain multiple strategies to solve problems with or without context involving demonstrating fluency with addition and subtraction.

Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit sum and minuend to be one hundred or less.

Sample Stems

Which path will give the largest sum going from Start to Finish?
Which path will give the smallest sum? What strategies can be used to find each of these sums?



Additional Stems for 2nd Grade
Found at End of Document.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 2 Mathematics

Mathematics		2.NBT.B.7
NBT B 7	Number Sense and Operations in Base Ten Use place value understanding and properties of operations to add and subtract. Add up to four two-digit numbers.	
<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u> The student will add up to four two-digit numbers using student selected strategies based on place value, e.g., composing and decomposing tens, using partials, counting on/back in groups of tens, and properties of operations, e.g., associative, commutative, identity. Note: While students will be learning how to use strategies and properties of operations, i.e., associative, commutative, identity, the focus is not on identifying or naming the properties; however, the teacher should use the correct mathematical vocabulary.		<u>Sample Stems</u> Provide students with two-digit number cards. Have them draw 4 to add together. How do they get their answer? What works? Is there anything that does not work? Encourage them to find strategies to verify the accuracy of their work.

Grade 2 Mathematics

Mathematics		2.NBT.B.8
NBT	Number Sense and Operations in Base Ten	PRIORITY STANDARD
B	Use place value understanding and properties of operations to add and subtract.	
8	Add or subtract within 1000, and justify the solution.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will add and/or subtract with numbers and results within 1000, including situations requiring composing and decomposing hundreds and tens.</p> <p>The student will justify answers using words, numbers, or models, e.g., base ten blocks, hundreds chart, open number line, drawings.</p>		<p><u>Sample Stems</u></p> <p>Students are given cards 0-9 to generate two 2- or 3-digit numbers. They will roll a dice to decide the operation (addition or subtraction). Student will then write or type a math story problem with their given numbers and operation. Student will need to correctly solve their problem.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>Limit sum and minuend to be less than or equal to one thousand.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.NBT.B.9
NBT	Number Sense and Operations in Base Ten	PRIORITY STANDARD
B	Use place value understanding and properties of operations to add and subtract.	
9	Use the relationship between addition and subtraction to solve problems.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will use the relationship between addition and subtraction to solve problems with or without context.</p> <p>Note: Being able to use the relationship between addition and subtraction means that students have the flexibility to understand that problems could be solved using either addition or subtraction.</p> <p>Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an <u>appropriate strategy</u> in a reasonable amount of time, <u>knowing multiple processes</u> and can apply or adapt strategies to find a correct solution.</p> <p>The student will use and explain multiple strategies to solve problems with or without context involving using the relationship between addition and subtraction to solve problems.</p>		<p><u>Sample Stems</u></p> <p>Julie and three friends were making 80 cookies for the school carnival. They put blue frosting on some and red on some. When they finished, they saw they had more red cookies than blue cookies. How many of each color could they have?</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>Limit sum and minuend to be one thousand or less.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
DOK Ceiling: 2		
Item Format: Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

[illegible]

Grade 2 Mathematics

Mathematics		2.NBT.C.11
NBT C 11	Number Sense and Operations in Base Ten Represent and solve problems involving addition and subtraction Write and solve problems involving addition and subtraction within 100.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will solve one- and two-step problems with or without context involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., using drawings and/or equations with a symbol for the unknown number to represent the problem.</p> <p>The student will write (represent) and solve one- and two-step problems with or without context involving addition and subtraction within 100 with unknowns in all positions using a symbol for the unknown number. Symbols used should be a \square, \bigcirc, or “?”, e.g., $4 + \square = 43$, $\bigcirc + 3 = 25$, $34 + 13 = ?$, $29 - \square = 4$, $? - 4 = 67$.</p> <p>The student will write (create) to share or solve one- and two-step problems with or without context involving addition and subtraction within 100 with unknowns in all positions for others to solve.</p>		<p><u>Sample Stems</u></p> <p>Students are given cards 0-9 to generate two 2- or 3-digit numbers. They will roll a dice to decide the operation (addition or subtraction). Student will then write or type a math story problem with their given numbers and operation. Student will need to correctly solve their problem.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling: 3</u>		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.RA.A.1
RA A 1	Relationships and Algebraic Thinking Add and subtract within 20 Demonstrate fluency with addition and subtraction within 20.	PRIORITY STANDARD
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will demonstrate fluency with sums and differences within 20 using make ten, doubles, near doubles, properties of operations (associative, commutative, identity), or other mental strategies.</p> <p>Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an <u>appropriate strategy</u> in a reasonable amount of time, <u>knowing multiple processes</u> and can apply or adapt strategies to find a correct solution.</p> <p>The student will use and explain multiple strategies to solve problems with or without context involving demonstrating fluency with addition and subtraction.</p>		<p><u>Sample Stems</u></p> <p>Given the following numbers: 4, 20, 8, 12, and 16, students will create 3 number sentences with answers that result within 20 or less.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<p>DOK Ceiling: 2</p>		
<p>Item Format: Selected Response, Constructed Response, Technology Enhanced</p>		

Grade 2 Mathematics

Mathematics		2.RA.B.2.a
RA	Relationships and Algebraic Thinking	
B	Develop foundations for multiplication and division.	
2	Determine if a set of objects has an odd or even number of members.	
a	Count by 2s to 100 starting with any even number.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The expectations in 2.RA.B.2 (a through c) show how 2nd grade students will determine if a set of objects has an odd or even number of members.</p> <p>The student will count by 2s to 100 starting with any even number.</p> <p>Note: In grade 2, students will be developing an understanding of what it means for a number to be “even”. Students should not be expected to define “even” at this point.</p>		<p><u>Sample Stems</u></p> <p>Students will work in partners to determine if their cards are odd or even. Students flip over one card at a time and determine if it is odd or even. They need to be able to explain to their partner how they know. If the card is even, they need to count on by 2s from that number for an additional 5-10 numbers. Another variation of the game is to flip over two cards at a time, if both cards are even, they get to keep that pair of cards. After all the cards have been chosen, the student with the most cards wins.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling: 1</u>		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

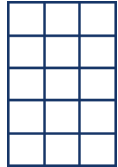
Grade 2 Mathematics

Mathematics		2.RA.B.2.b
RA	Relationships and Algebraic Thinking	
B	Develop foundations for multiplication and division.	
2	Determine if a set of objects has an odd or even number of members.	
b	Express even numbers as pairings/groups of 2, and write an expression to represent the number using addends of 2.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The expectations in 2.RA.B.2 (a through c) show how 2nd grade students will determine if a set of objects has an odd or even number of members.</p> <p>The student will express even numbers as pairings/groups of 2 and odd numbers as pairings of two with an extra unpaired member.</p> <p>The student will use an expression to represent the number using addends of 2. For example, 8 can be represented as $2 + 2 + 2 + 2$ while 9 can be represented as $2 + 2 + 2 + 2 + 1$.</p> <p>Note: In grade 2, students will be developing an understanding of what it means for a number to be even or odd. Students should not be expected to define either term at this point.</p>		<p><u>Sample Stems</u></p> <p>Students will recognize and be able to write an expression with any given even number plus an addend of 2. Is the answer to an even number plus 2 always even, always odd, neither or both? How do you know? Provide expressions to prove your answer.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>Limit expressions to be 30 or less.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 1		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.RA.B.2.c
RA	Relationships and Algebraic Thinking	
B	Develop foundations for multiplication and division.	
2	Determine if a set of objects has an odd or even number of members.	
c	Express even numbers as being composed of equal groups and write an expression to represent the number with 2 equal addends.	
<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u>		<u>Sample Stems</u>
<p>The expectations in 2.RA.B.2 (a through c) show how 2nd grade students will determine if a set of objects has an odd or even number of members.</p> <p>The student will express even numbers using two equal groups, while odd numbers cannot be represented with two equal groups of whole numbers.</p> <p>The student will use an expression to represent (write) the even number using equal addends. For example, 22 can be represented as $11 + 11$, while 25 cannot be represented with two equal groups of whole numbers, e.g., 25 can be represented by $12 + 13$ but those are not equal groups.</p> <p>Note: In grade 2, students will be developing an understanding of what it means for a number to be even or odd. Students should not be expected to define either term at this point.</p>		<p>Given the following expressions, $6+6$, $7+7$, $2+2$, etc. Are the answers to these expressions always even, odd, neither or both? Provide examples to explain your thinking. You may use drawings, words, equations, etc. Limit to equations that add up to</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u>		<u>Calculator Designation</u>
Limit expressions to be 30 or less.		NO – a calculator will not be available for items
DOK Ceiling: 3		
Item Format: Selected Response, Constructed Response, Technology Enhanced		


Grade 2 Mathematics

Mathematics		2.RA.B.3
RA	Relationships and Algebraic Thinking	PRIORITY STANDARD
B	Develop foundations for multiplication and division.	
3	Find the total number of objects arranged in a rectangular array with up to 5 rows and 5 columns, and write an equation to represent the total as a sum of equal addends.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will use addition to find the total number of objects when given a rectangular array with up to 5 rows and 5 columns.</p> <p>The student will write an equation to represent the total as a sum of equal addends, e.g., a 3 by 4 array can be thought of as 4 groups of 3 and represented as $3 + 3 + 3 + 3 = 12$ or as 3 groups of 4 and represented as $4 + 4 + 4 = 12$.</p> <p>Note: The focus of this standard is for students to describe their total number of objects and not on describing their chosen grouping by rows and columns. Those terms will be targeted at a later grade.</p> <p>Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an <u>appropriate strategy</u> in a reasonable amount of time, <u>knowing multiple processes</u> and can apply or adapt strategies to find a correct solution.</p> <p>The student will use and explain multiple strategies to solve problems with or without context involving finding the total number of objects arranged in a rectangular array.</p>		<p><u>Sample Stems</u></p> <p>Create two different equations that could represent the total number of squares as a sum of equal addends for the figure below.</p>  <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling: 3</u>		
<u>Item Format: Selected Response, Constructed Response, Technology Enhanced</u>		

Grade 2 Mathematics

Mathematics		2.GM.A.1.a
GM	Geometry and Measurement	
A	Reason with shapes and their attributes.	
1	Recognize and draw shapes having specified attributes, such as a given number of angles or sides.	
a	Identify triangles, quadrilaterals, pentagons, hexagons, circles and cubes.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The expectations in 2.GM.A.1 (a and b) show how 2nd grade students will recognize and draw shapes having specified attributes, such as a given number of angles or sides.</p> <p>The student will identify (name, select, draw, build, locate in their classroom or school) triangles, quadrilaterals, pentagons, hexagons, circles, and cubes.</p> <p>Students enter school with a varied experience with shapes. They may refer to a vertex as a corner or even a “pointy thing”. The focus in second grade is to continue to develop student knowledge of shapes, primarily identification of the shape. Mathematically, angles are referring to a measure which would include right angles, obtuse angles, etc. The vertex is the intersection of the rays that make up the angle, so a rectangle would have 4 vertices. While students are developing this language to communicate their understanding, teachers should use angles when referring to the measure of the angle and vertex when discussing the point of intersection.</p> <p>Students should be able to verbally describe the characteristics that differ between a rectangle and a parallelogram without being required to use precise language like 90-degree angles, e.g., a square corner, straight up and down versus a slanted corner. Teachers should use mathematically correct language as they discuss shapes.</p> <p>Note: To support the work in identification, students should draw shapes having specified attributes, e.g., a given number of angles or sides. The focus here is in representing the shape and attributes, not the precision of the drawing.</p>		<p><u>Sample Stems</u></p> <p>Draw a shape that has 5 sides. What is this shape called? How many angles does it have?</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

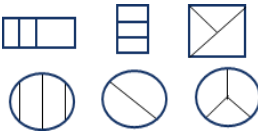
Grade 2 Mathematics

Mathematics		2.GM.A.1.b
GM	Geometry and Measurement	
A	Reason with shapes and their attributes.	
1	Recognize and draw shapes having specified attributes, such as a given number of angles or sides.	
b	Identify the faces of three-dimensional objects.	
<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u>		<u>Sample Stems</u>
<p>The expectations in 2.GM.A.1 (a and b) show how 2nd grade students will recognize and draw shapes having specified attributes, such as a given number of angles or sides.</p> <p>The student will understand that three-dimensional objects (prisms and pyramids) have two-dimensional faces and identify the shapes of those faces.</p> <p>The student will draw (trace) the faces of a three-dimensional object. The focus here is in representing the shape, not the precision of the drawing.</p> <p>Students enter school with a varied experience with shapes. They may refer to a vertex as a corner or even a “pointy thing”. The focus in second grade is to continue to develop student knowledge of shapes, primarily identification of the shape. Mathematically, angles are referring to a measure which would include right angles, obtuse angles, etc. The vertex is the intersection of the rays that make up the angle, so a rectangle would have 4 vertices. While students are developing this language to communicate their understanding, teachers should use angles when referring to the measure of the angle and vertex when discussing the point of intersection.</p> <p>Students should be able to verbally describe the characteristics that differ between a rectangle and a parallelogram without being required to use precise language like 90-degree angles, e.g., a square corner, straight up and down versus a slanted corner. Teachers should use mathematically correct language as they discuss shapes.</p> <p>Note: The focus in second grade is on the object's faces rather than identifying or naming a three-dimensional object’s name.</p>		<p>Look at the object below. Identify the shape of each face, including the base.</p>  <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u>		<u>Calculator Designation</u>
No Limits.		NO – a calculator will not be available for items
DOK Ceiling: 3		
Item Format: Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.GM.A.2
GM	Geometry and Measurement	
A	Reason with shapes and their attributes.	
2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of squares.	
<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u>		<u>Sample Stems</u>
<p>The student will partition (divide into equal parts) a rectangle into rows and columns of same-size squares and count to find the total number of squares.</p> <p>Note:</p> <p>The focus of this standard is for students to describe their total number of objects and not on describing their chosen grouping by rows and columns. Those terms will be targeted at a later grade.</p>		<p>Students will use some virtual manipulative tool, concrete manipulatives, or any other resource available to determine how many squares it takes to fill a given rectangle (make sure they keep the squares the same size). Have them explain how they got their answer. If they flip the rectangle on its side, is it the same number of squares? Have them create as many rectangles as possible with a given number of squares.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u>		<u>Calculator Designation</u>
No Limits.		NO – a calculator will not be available for items
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.GM.A.3.a
GM	Geometry and Measurement	PRIORITY STANDARD
A	Reason with shapes and their attributes.	
3	Partition circles and rectangles into two, three or four equal shares, and describe the shares and the whole.	
a	Demonstrate that equal shares of identical wholes need not have the same shape.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The expectations in 2.GM.A.3 show how 2nd grade students will partition (divide) circles and rectangles into two, three or four equal shares, and describe the shares and the whole.</p> <p>The student will describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. The focus should be on the language rather than fractional notation, e.g., half not $\frac{1}{2}$.</p> <p>The student will demonstrate that identical wholes can be partitioned into equal shares in multiple ways.</p> <p>Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an <u>appropriate strategy</u> in a reasonable amount of time, <u>knowing multiple processes</u> and can apply or adapt strategies to find a correct solution.</p> <p>The student will use and explain multiple strategies to solve problems with or without context involving demonstrating that equal shares of identical wholes need not have the same shape.</p>		<p><u>Sample Stems</u></p> <p>Which figure(s) show three thirds? Explain how you know.</p>  <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.GM.B.4
GM	Geometry and Measurement	
B	Measure and estimate lengths in standard units.	
4	Measure the length of an object by selecting and using appropriate tools.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will measure objects with standard units of measurement. Standard units of measurement for the customary system include inches, feet, and yards. Standard units of measurement for the metric system include centimeters and meters.</p> <p>The student will measure the length of an object to the nearest whole unit by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p>		<p><u>Sample Stems</u></p> <p>Choose several objects to measure and several tools with which to measure. Put students in groups of 3 to work on this problem. Explain that they will select one object to measure and two tools to measure it with. For example, measure a baseball bat with a ruler and a yardstick. Why are different measurements determined? Which tool is more effective? Why? How are the measurements alike? How are they different?</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.GM.B.5
GM B 5	Geometry and Measurement Measure and estimate lengths in standard units. Analyze the results of measuring the same object with different units.	PRIORITY STANDARD
<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u> The student will analyze the results of measuring the same object with different units. For this expectation to analyze includes recognizing that the size of the measurement unit used is related to the number of units needed to measure the object. When larger units are used, fewer of the units will be needed to measure the object. Note: The focus for this expectation should include units in inches, feet, yards, centimeters, or meters, measured to the nearest whole unit.		<u>Sample Stems</u> What is the relationship between inches and feet? If I were to measure something in inches, then measure it in feet, what would I expect the answer to be?

Grade 2 Mathematics

Mathematics		2.GM.B.6
GM	Geometry and Measurement	
B	Measure and estimate lengths in standard units.	
6	Estimate lengths using units of inches, feet, yards, centimeters and meters.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will estimate lengths using units of inches, feet, yards, centimeters, and meters to the nearest whole unit. The focus is on improving strategies for estimation, not precise measurement.</p>		<p><u>Sample Stems</u></p> <p>Johnny estimated a baseball bat to be 10 inches long. Do you agree or disagree with his estimate? Explain your reasoning.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

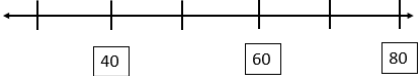
Grade 2 Mathematics

Mathematics		2.GM.B.7
GM	Geometry and Measurement	
B	Measure and estimate lengths in standard units.	
7	Measure to determine how much longer one object is than another.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will measure to the nearest whole unit to determine how much longer one object is than another, expressing the length difference in terms of a standard unit of length.</p> <p>Note: Units of length include inches, feet, yards, centimeters, and meters.</p>		<p><u>Sample Stems</u></p> <p>Estimate: Is a baseball bat longer or shorter than a meter stick? Measure the baseball bat and tell how much longer or shorter it is than a meter.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 2		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		


Grade 2 Mathematics

Mathematics		2.GM.C.8
GM	Geometry and Measurement	
C	Relate addition and subtraction to length.	
8	Use addition and subtraction within 100 to solve problems involving lengths that are given in the same units.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will use addition and subtraction within 100 to solve problems with or without context involving lengths that are given in the same units, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</p> <p>Note: When using equations the unknown should be represented with a \square or a \bigcirc.</p> <p>Units of length include inches, feet, yards, centimeters, and meters.</p>		<p><u>Sample Stems</u></p> <p>Clay has a piece of string that is 35 inches long. He cuts off a piece of string to tie around a post. Clay's string is now 7 inches long.</p> <p>How many inches of string did Clay use to tie around the post?</p> <p>Write an equation using a \bigcirc for the missing number. Then solve.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.GM.C.9
GM	Geometry and Measurement	PRIORITY STANDARD
C	Relate addition and subtraction to length.	
9	Represent whole numbers as lengths on a number line, and represent whole-number sums and differences within 100 on a number line.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will represent whole numbers as lengths on a number line and represent whole-number sums and differences within 100 using a number line.</p> <p>Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an <u>appropriate strategy</u> in a reasonable amount of time, <u>knowing multiple processes</u> and can apply or adapt strategies to find a correct solution.</p> <p>The student will use and explain multiple strategies to solve problems with or without context involving representing whole numbers as lengths.</p> <p>Note: A number line is a type of diagram used to represent concepts such as distance. Measurement tools, e.g., rulers, yardsticks, have standardized units which could be used as a type of number line. These are different representations of how to measure length.</p>		<p><u>Sample Stems</u></p> <p>Use the number line below to show to represent the sum of $45 + 25$.</p>  <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
DOK Ceiling: 2		
Item Format: Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.GM.D.10
GM	Geometry and Measurement	
D	Work with time and money.	
10	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. Note using a context supports students’ understanding of the need for a.m. and p.m.</p>		<p><u>Sample Stems</u></p> <p>The clock shows what time Lisa gets on the bus to come to school. What time does Lisa get on the bus to come to school?</p>  <p>Is it a.m. or p.m.? Explain how you know.</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.GM.D.11
GM	Geometry and Measurement	
D	Work with time and money.	
11	Describe a time shown on a digital clock as representing hours and minutes, and relate a time shown on a digital clock to the same time on an analog clock.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will describe a time shown on a digital clock as representing hours and minutes, and relate a time shown on a digital clock to the same time on an analog clock.</p> <p>The focus for this expectation is to support student understanding that representing units is to connect the numbers representing the units of hours and minutes.</p> <p>Note: Use times shown to the nearest 5 minutes.</p>		<p><u>Sample Stems</u></p> <p>How many hours and how many minutes are represented by the time shown on the digital clock?</p> <div data-bbox="1671 570 1806 639" data-label="Image"> </div> <p>Show the same time on the analog clock below.</p> <div data-bbox="1663 790 1812 933" data-label="Image"> </div> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

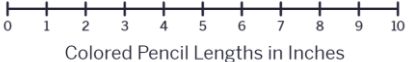
Grade 2 Mathematics

Mathematics		2.GM.D.12
GM	Geometry and Measurement	PRIORITY STANDARD
D	Work with time and money.	
12	Find the value of combinations of dollar bills, quarters, dimes, nickels and pennies, using \$ and ¢ appropriately.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will find and represent the value of combinations of dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ appropriately.</p> <p>Note: At grade 2 the focus is not to represent the money using decimals, generally students should represent a number like \$2.25 as 2 dollars and 25 cents. Some students may choose to use decimals as one representation, but this is not expected. The focus is to find values using labels of dollars and cents as units, e.g. two dollar bills and a quarter could be represented as 2 dollars and 25 cents, \$2 and 25¢, or 225 cents. Students should have access to pictures, manipulatives, and other representations to demonstrate a given value.</p> <p>Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an <u>appropriate strategy</u> in a reasonable amount of time, <u>knowing multiple processes</u> and can apply or adapt strategies to find a correct solution.</p> <p>The student will use and explain multiple strategies to solve problems with or without context involving finding combinations of money using dollars and cents.</p>		<p><u>Sample Stems</u></p> <p>You show an amount of money with 1 bill and 4 coins. What could it be? What coins did you use?</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>Limit combination of bills and coins to a total of \$25 or less.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

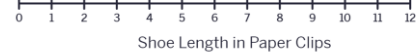
Grade 2 Mathematics

Mathematics		2.GM.D.13
GM	Geometry and Measurement	
D	Work with time and money.	
13	Find combinations of coins that equal a given amount.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will find combinations of coins that equal a given amount, e.g., 50¢ can be shown as two quarters, five dimes, ten nickels; one quarter, two dimes and one nickel; one quarter, two dimes and five pennies; and other coin combinations.</p> <p>Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an appropriate strategy in a reasonable amount of time, knowing multiple processes and can apply or adapt strategies to find a correct solution.</p> <p>The student will use and explain multiple strategies to solve problems with or without context involving finding combinations of coins based on a given amount.</p>		<p><u>Sample Stems</u></p> <p>I have six coins that total 30 cents. What coins could I have?</p> <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>Limit value of coins to 100 cents or less. Limit coins to quarters, dimes, nickels, and pennies.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 2		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.DS.A.1
DS A 1	Data and Statistics Represent and interpret data Create a line plot to represent a set of numeric data, given a horizontal scale marked in whole numbers.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will use a given horizontal scale, marked with sequential whole numbers, to create a line plot to represent a given set of numeric data.</p> <p>Note: A line plot is a graph that displays data as points above a number line showing the frequency of each value in a data set.</p> <p>Data markers, e.g., dot or x, should represent only one piece of data.</p> <p>While some resources might use both line plots and dot plots, since our standard uses line plots, instruction should match the expectation.</p>		<p><u>Sample Stems</u></p> <p>Create a line plot above the number line below to show the lengths of Drew’s colored pencils.</p> <p>Red pencil - 3 inches Blue pencil - 4 inches Green pencil – 5 inches Yellow pencil – 7 inches Orange pencil – 5 inches Purple pencil – 4 inches Pink pencil – 7 inches Brown pencil – 5 inches Black pencil – 5 inches</p>  <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.DS.A.2
DS	Data and Statistics	
A	Represent and interpret data	
2	Generate measurement data to the nearest whole unit, and display the data in a line plot.	
<p><u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u></p> <p>The student will generate measurement data by measuring lengths of several related objects, e.g., shoe lengths, using standard or non-standard units, e.g., paperclips, to the nearest whole unit.</p> <p>The student will show the measurements by making a line plot, where the horizontal scale is marked off in sequential whole-number units.</p> <p>Note: A line plot is a graph that displays data as points above a number line showing the frequency of each value in a data set.</p> <p>While some resources might use both line plots and dot plots, since our standard uses line plots, instruction should match the expectation.</p>		<p><u>Sample Stems</u></p> <p>Measure your shoe length with paper clips. Share your measurements with classmates and make a line plot using the gathered data.</p>  <p>Additional Stems for 2nd Grade Found at End of Document.</p>
<p><u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u></p> <p>No Limits.</p>		<p><u>Calculator Designation</u></p> <p>NO – a calculator will not be available for items</p>
<u>DOK Ceiling:</u> 3		
<u>Item Format:</u> Selected Response, Constructed Response, Technology Enhanced		

Grade 2 Mathematics

Mathematics		2.DS.A.3								
DS A 3	Data and Statistics Represent and interpret data Draw a picture graph or a bar graph to represent a data set with up to four categories.									
<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u> The student will draw a picture graph or a bar graph to represent a data set with up to four categories. In second grade, each picture in a picture graph will represent one unit, e.g., the key would show a picture representing one object. The scale of a bar graph, for this expectation, should be whole numbers counting by ones, e.g., 0, 1, 2.... Note: Graphs may be oriented horizontally or vertically. The picture in a picture graph should be labeled, e.g., a picture of an apple should have a label of “apple” on the axis.		<u>Sample Stems</u> Use the data from the tally chart below to draw a picture graph. Draw a 😊 to represent each person’s choice. <table><tr><td>Dog</td><td> </td></tr><tr><td>Cat</td><td> </td></tr><tr><td>Rabbit</td><td> </td></tr><tr><td>Snake</td><td> </td></tr></table> Use the same data to draw a bar graph. 	Dog		Cat		Rabbit		Snake	
Dog										
Cat										
Rabbit										
Snake										


Grade 2 Mathematics

Mathematics		2.DS.A.4								
DS A 4	Data and Statistics Represent and interpret data Solve problems using information presented in line plots, picture graphs and bar graphs.	PRIORITY STANDARD								
<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u> The student will solve problems using information presented in line plots, picture graphs or bar graphs, e.g., put-together, take-apart and compare. Note: Students are developing the skill of using data and representations of data to solve problems. During this development, the scale of the axis will primarily be one on a bar graph and the pictures of a picture graph will represent one unit. While some resources might use both line plots and dot plots, since our standard uses line plots, instruction should match the expectation.		<u>Sample Stems</u> Mrs. Quinn’s class voted on their favorite animals. The results are shown below. <table><tr><td>Cat</td><td>★ ★ ★ ★ ★</td></tr><tr><td>Dog</td><td>★ ★ ★ ★ ★ ★ ★</td></tr><tr><td>Rabbit</td><td>★ ★ ★</td></tr><tr><td colspan="2">★ = 1 vote</td></tr></table> How many children in her class voted? How many more students like cats than rabbits? 	Cat	★ ★ ★ ★ ★	Dog	★ ★ ★ ★ ★ ★ ★	Rabbit	★ ★ ★	★ = 1 vote	
Cat	★ ★ ★ ★ ★									
Dog	★ ★ ★ ★ ★ ★ ★									
Rabbit	★ ★ ★									
★ = 1 vote										

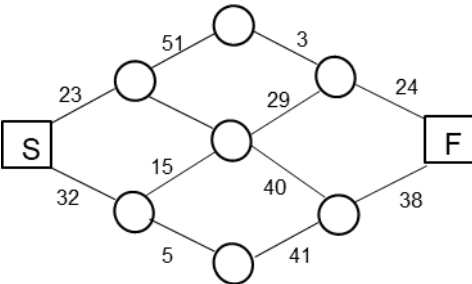
Grade 2 Mathematics

Mathematics		2.DS.A.5										
DS A 5	Data and Statistics Represent and interpret data Draw conclusions from line plots, picture graphs and bar graphs.	PRIORITY STANDARD										
<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u> The student will draw conclusions about the data represented graphically, e.g., make a decision, answer a question. Note: Students are developing the skill of using data and representations of data to solve problems. During this development, the scale of the axis will primarily be one on a bar graph and the pictures of a picture graph will represent one unit. While some resources might use both line plots and dot plots, since our standard uses line plots, instruction should match the expectation.		<u>Sample Stems</u> In the graph below, the number of sunny days is marked with a sun. <table><tr><td>March</td><td>☀☀☀☀☀☀☀☀☀</td></tr><tr><td>April</td><td>☀☀☀☀☀☀☀☀☀☀☀☀</td></tr><tr><td>May</td><td>☀☀☀☀☀☀☀☀☀☀☀☀☀☀</td></tr><tr><td>June</td><td>☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀</td></tr><tr><td colspan="2">☀ = 1 day</td></tr></table> If you wanted to travel to the city and have sunny weather, which month would you plan your trip? Why? Additional Stems for 2nd Grade Found at End of Document.	March	☀☀☀☀☀☀☀☀☀	April	☀☀☀☀☀☀☀☀☀☀☀☀	May	☀☀☀☀☀☀☀☀☀☀☀☀☀☀	June	☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀	☀ = 1 day	
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June	☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀☀											
☀ = 1 day												
<u>Suggested Local Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits</u> No Limits.		<u>Calculator Designation</u> NO – a calculator will not be available for items										
DOK Ceiling: 3												
Item Format: Selected Response, Constructed Response, Technology Enhanced												

Grade 2 Mathematics

Code	Sample Stem	Explanation
2.NBT.A.1	What does 563 represent? What about 307?	Make sure students know the 0 is important and represents a value in numbers. (What about 30 tens or 56 tens?)
	How many ones are in 100?	Give each group of students access to bundles of straws, tongue depressors, etc. Have them take the bundles apart and count until they have 100. How many ones did they discover? Once they have 100, have them make bundles of 10 again. How many bundles do they have?
2.NBT.A.2	<p>Timmy and Gina have a set of 30 rods with 10 cubes like the one shown below. What are the ways they could describe the total number of cubes in their entire set?</p> 	
2.NBT.A.3	<p>Start counting by ones from 26 and I will tell you when to stop (teacher stops them at 42).</p> <p>Start counting by tens from 145 and I will tell you when to stop (teacher stops them at 205).</p> <p>Start counting by hundreds at 623 and I will tell you when to stop (teacher stops them at 923).</p>	<p>Students may count orally or write out the numbers that the teacher provides. Teacher will stop the student when they go to the next decade or century. Teachers may provide the beginning number and student will write or count on the next set of numbers until instructed to stop.</p>
2.NBT.A.4	Students are given cards 0-9 to generate two 3-digit numbers. Each student will then write or type a math story problem with their given numbers using their number names.	<p>One suggestion is to have students read their stories to another student (in pairs). The student who is being read to could write the numbers in expanded form. The pairs can discuss if the numbers in the story match the numbers in expanded form.</p>
2.NBT.A.5	Compare three hundred seventeen and three hundred forty. Which number is larger? Explain how you know.	Use place value blocks to model the numbers. Compare the sets to determine which number is larger. Note: the inequality or equal sign is not the compare being sought. Those symbols represent the conclusion of the comparison. Students should explain how they decided each values' relative size.


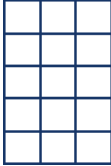
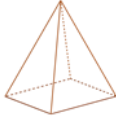
Grade 2 Mathematics

	Elliott drove 398 miles over the weekend and Steve drove 389 miles. Write a number sentence using < > or = to show who drove the furthest. Explain how you compared these numbers to decide on the symbol to use.	Note: the inequality or equal sign is not the compare being sought. Those symbols represent the conclusion of the comparison. Students should explain how they decided each values' relative size.					
Code	Sample Stem	Explanation					
2.NBT.B.6	<p>Which path will give the largest sum going from Start to Finish? Which path will give the smallest sum?</p> <p>What strategies can be used to find each of these sums?</p> 	Provide students with a "map" that indicates paths to the finish. Students must add numbers along the paths to move them from Start to Finish. This could work well as a physical reenactment with paper plates indicating the value of the islands along the way.					
2.NBT.B.7	Provide students with two-digit number cards. Have them draw 4 to add together. How do they get their answer? What works? Is there anything that does not work? Encourage them to find strategies to verify the accuracy of their work.						
2.NBT.B.8	Students are given cards 0-9 to generate two 2- or 3-digit numbers. They will roll a dice to decide the operation (addition or subtraction. Student will then write or type a math story problem with their given numbers and operation. Student will need to correctly solve their problem.						
	Use any digits 0 - 9 in the blanks to make the following equation true. 8_5 - _47 = 448	Students could be asked to indicate what do they know has to be true to subtract numbers to get an 8 in the ones place? Teachers could also use a what do you notice and wonder to generate some ideas for strategies for this problem.					
	Who is correct in how they would solve 599+3 ? How do you know?						
	<table><tr><td>Sally</td><td>Kaden</td><td>Jane</td></tr><tr><td>599+1=600 600+2=602</td><td>$\begin{array}{r} 12 \\ 599 \\ + 3 \\ \hline 1,511 \end{array}$</td><td>500+90+3+593</td></tr></table>	Sally	Kaden	Jane	599+1=600 600+2=602	$\begin{array}{r} 12 \\ 599 \\ + 3 \\ \hline 1,511 \end{array}$	500+90+3+593
Sally	Kaden	Jane					
599+1=600 600+2=602	$\begin{array}{r} 12 \\ 599 \\ + 3 \\ \hline 1,511 \end{array}$	500+90+3+593					
	Solve the following math problem. 319 – 285 = ? Use words, pictures, math sentences or other math strategies to support your answer.						


Grade 2 Mathematics

Code	Sample Stem	Explanation
2.NBT.B.9	There were 114 cookies on the tray. There were 67 chocolate cookies, and the rest were sugar. How many sugar cookies were there?	
	Julie and three friends were making 80 cookies for the school carnival. They put blue frosting on some and red on some. When they finished, they saw they had more red cookies than blue cookies. How many of each color could they have?	Students could use models (e.g., blocks, cubes, bar models) to solve or demonstrate understanding with this type of problem.
	<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <p>Brandon made a pattern with 45 blocks. He lost 24 blocks. How many blocks does Brandon still have for his pattern?</p> <p>Alexa had 36 of her favorite songs saved to a playlist. Her sister added 58 more songs to the same playlist. How many songs do they have on the playlist now?</p> </div> <div style="flex: 1; padding-left: 10px;"> <p>Brandon made a pattern with 45 blocks. He lost 24 blocks. How many blocks does Brandon still have for his pattern?</p> <p>Alexa had 36 of her favorite songs saved to a playlist. Her sister added 58 more songs to the same playlist. How many songs do they have on the playlist now?</p> </div> </div>	
2.NBT.B.10	Magic Number Game - use dice to create a number and then add 10, subtract 10, add 100, subtract 100	
2.NBT.C.11	Students are given cards 0-9 to generate two 2- or 3-digit numbers. They will roll a dice to decide the operation (addition or subtraction. Student will then write or type a math story problem with their given numbers and operation. Student will need to correctly solve their problem.	Materials needed: cards 0 - 9 and dice. Can also use virtual materials or manipulatives as tools.
2.RA.A.1	Given the following numbers: 4, 20, 8, 12, and 16, students will create 3 number sentences with answers that result within 20 or less.	Students may make addition or subtraction sentences. Any combination of 5 numbers can be used.
2.RA.B.2a	Even or Odd Game- Students will work in partners to determine if their cards are odd or even. Students can flip over one card at a time and determine if it is odd or even, they need to be able to explain to their partner how they know. If the card is even, they need to count on by 2s from that number for an additional 5-10 numbers. Another variation of the game is to flip over two cards at a time, if both cards are even, they get to keep that pair of cards. After all cards have been chosen, the student with the most cards wins.	Materials needed: number cards 1-100, Odd and Even T-chart or two different odd and even cards for sorting, students might need counters, hundreds chart, blocks or a concrete manipulative for assistance with determining odd or even
2.RA.B.2b	Students will recognize and be able to write an expression with any given even number plus an addend of 2. Is the answer to an even number plus 2 always even, always odd, neither or both? How do you know? Provide expressions to prove your answer. Could limit numbers to 20.	Could extend numbers to 100.


Grade 2 Mathematics

Code	Sample Stem	Explanation
2.RA.B.2c	Given the following expressions- $6+6$, $7+7$, $2+2$, etc. Are the answers to these expressions always even, odd, neither or both? Provide examples to explain your thinking. You may use drawings, words, equations, etc. Limit to equations that add up to 20.	
2.RA.B.3	Write an equation to represent the total number of squares as a sum of equal addends. 	
	Create two different equations that could represent the total number of squares as a sum of equal addends for the figure below. 	
2.GM.A.1a	Draw 2 different quadrilaterals and circle their angles. Explain how you know they are quadrilaterals.	
	Draw a shape that has 5 sides. What is this shape called? How many angles does it have?	
2.GM.A.1b	Give students a 3-D object (ex. cube, rectangular prism, square prism, square pyramid, triangular pyramid, etc.). Ask students to trace each face of the object. Then, ask students to identify the shape of each face. Discuss what students notice and wonder.	
	Look at the object below. Identify the shape of each face, including the base. 	

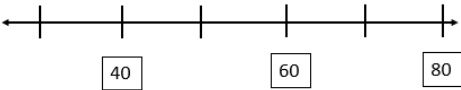
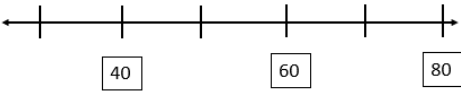
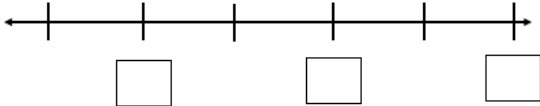



Grade 2 Mathematics

Code	Sample Stem	Explanation
2.GM.A.2	Students will use some virtual manipulative tool, concrete manipulatives or any other resource available to determine how many squares it takes to fill a given rectangle (make sure they keep the squares the same size). Have them explain how they got their answer. If they flip the rectangle on its side, is it the same number of squares? Have them create as many rectangles as possible with a given number of squares.	
2.GM.A.3a	Give various examples of circles and rectangles. Have some divided into sections and have students identify which are halves, thirds and fourths. They should be able to explain why a shape is or is not divided into these given shares.	Be sure to show how thirds of a rectangle and thirds of a circle do not show the same amount and have students explain why. You can use an online resource to have the shapes partitioned.
	Which figures show three thirds? Explain how you know. 	
2.GM.B.4	Choose several objects to measure and several tools with which to measure. Put students in groups of 3 to work on this problem. Explain that they will select one object to measure and two tools to measure it with. For example, measure a baseball bat with a ruler and a yardstick. Why are different measurements determined? Which tool is more effective? Why? How are the measurements alike? How are they different?	
	What would be an appropriate tool to use to measure a baseball bat? Measure the baseball bat to the nearest centimeter.	
2.GM.B.5	Have students measure their desktops with a favorite crayon (broken is fine and preferred). Have students compare answers and then pose these questions: Why did we get so many different answers? What do you notice about the desks? Why would the size of the crayons matter? What are some important things to remember?	Once students understand measurement, have them begin measuring a lengthy hallway with paperclips. Part of the way down the hall, stop to discuss how it's going? What would make this work easier? Would you rather use a cube, a ruler, a yardstick, or a 500-foot tape measure? Why?
	What is the relationship between inches and feet? If I were to measure something in inches, then measure it in feet, what would I expect the answer to be?	

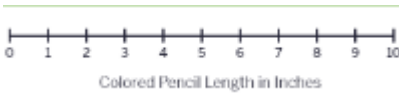

Grade 2 Mathematics

Code	Sample Stem	Explanation
2.GM.B.6	Provide students with several objects to measure. After they each have an item (or for small groups of 3) have them <i>estimate</i> about how many centimeters long their item is. About how many meters long is the item? When finished with estimating, provide tools, and allow students to measure their objects. How close were they? Are they close to the actual length?	Extend this activity by providing different objects and then estimating the length for feet and yardsticks. Or estimating whether a book is closer to 8 inches or 15 inches.
	Johnny estimated a baseball bat to be 10 inches long. Do you agree or disagree with his estimate? Explain your reasoning.	
2.GM.B.7	Provide students with two objects to measure. Their goal is to determine how much longer one object is than the other. Give students snap cubes to begin comparing lengths. Snap the cubes together to match one object as closely as possible. Without taking the cubes apart, move the other object into position to measure it. Is object 1 longer than Object 2? How many more cubes would you need to add to have the length of Object 2? If Object 2 is smaller, how many cubes would need to be removed to match the length of Object 2? Discuss how students know.	To continue with this standard, provide two objects to compare but measure with a measurement tool. How many inches longer is one tool than the other? How can you tell? How many feet longer is one hallway than another? Does measuring with centimeters provide different results with the same objects?
	Estimate: Is a baseball bat longer or shorter than a meter? Measure the baseball bat and tell how much longer or shorter it is than a meter.	
2.GM.C.8	Sami wants to build a new doghouse for her pet. She decides to make one side 28 inches long. The next side is 15 inches long. Then she needs another side that is 28 inches and one that is 15 inches. How many inches of wood will she need to buy to make the doghouse? (86 inches)	Max wanted to donate his hair to Wigs for Kids with Cancer. He began growing it in Middle School and grew it through high school. His hair kept growing during 7 grades. When he was ready to get it cut, his hair was 23 inches long. After it was cut, his hair was 6 inches long. Write an equation to show how much hair he donated.
	Clay has a piece of string that is 35 inches long. He cuts off a piece of string to tie around a post. Clay's string is now 7 inches long. How many inches of string did Clay use to tie around the post? Write an equation using a  for the missing number. Then solve.	

























































































































































































































Grade 2 Mathematics

Code	Sample Stem	Explanation
2.GM.C.9	<p>Use the number line below to show to represent the length of $45 + 25$.</p> 	
	<p>Use the number line below to show to represent the length of 55.</p> 	
	<p>Use the number line below to show to represent the difference of $64 - 28$.</p> 	
2.GM.D.10	<p>The clock shows what time Lisa gets on the bus to come to school. What time does Lisa get on the bus to come to school?</p>  <p>Is it a.m. or p.m.? Explain how you know.</p>	
2.GM.D.11	<p>How many hours and how many minutes are represented by the time shown on the digital clock?</p>  <p>Show the same time on the analog clock below?</p> 	
2.GM.D.12	<p>Your math teacher says they have \$3 dollars and 70 cents in their pocket. What are the bills and coins that could be in his pocket?</p>	

Grade 2 Mathematics

	You show an amount of money with 1 bill and 4 coins. What could it be? What coins did you use?									
Code	Sample Stem	Explanation								
2.GM.D.13	From a stack of 20 cards with different money amounts on them, students will use combinations of coins to equal the amount on the card they drew from the stack.									
	I have six coins that total 30 cents. What coins could I have?									
2.DS.A.1	<p>Create a line plot above the number line below to show the lengths of Drew’s colored pencils.</p> <p>Red pencil - 3 inches Blue pencil - 4 inches Green pencil – 5 inches Yellow pencil – 7 inches Orange pencil – 5 inches Purple pencil – 4 inches Pink pencil – 7 inches Brown pencil – 5 inches Black pencil – 5 inches</p> 									
2.DS.A.2	<p>Measure your shoe length with paper clips. Share your measurements with classmates and make a line plot using the gathered data.</p> 									
2.DS.A.3	<p>Use the data from the tally chart below to draw a picture graph. Draw a 😊 to represent each person’s choice.</p> <table border="1" data-bbox="378 1434 605 1572"><tr><td>Dog</td><td> </td></tr><tr><td>Cat</td><td> </td></tr><tr><td>Rabbit</td><td> </td></tr><tr><td>Snake</td><td> </td></tr></table> <p>Use the same data to draw a bar graph.</p>	Dog		Cat		Rabbit		Snake		
Dog										
Cat										
Rabbit										
Snake										

Grade 2 Mathematics

Code	Sample Stem	Explanation										
2.DS.A.4	<p>Mrs. Quinn’s class voted on their favorite animals. The results are shown below.</p> <div><p>Favorite Animals</p><table><tr><td>Cat</td><td></td></tr><tr><td>Dog</td><td></td></tr><tr><td>Rabbit</td><td></td></tr><tr><td colspan="2"> = 1 vote</td></tr></table></div> <p>How many children in her class voted? How many more students like cats than rabbits?</p>	Cat	    	Dog	       	Rabbit	   	 = 1 vote				
Cat	    											
Dog	       											
Rabbit	   											
 = 1 vote												
2.DS.A.5	<p>In the graph below, the number of sunny days is marked with a sun.</p> <div><table><tr><td>March</td><td></td></tr><tr><td>April</td><td></td></tr><tr><td>May</td><td></td></tr><tr><td>June</td><td></td></tr><tr><td colspan="2"> = 1 day</td></tr></table></div> <p>If you wanted to travel to the city and have sunny weather, which month would you plan your trip? Why?</p>	March	       	April	         	May	           	June	                      	 = 1 day		
March	       											
April	         											
May	           											
June	                      											
 = 1 day												